2019–2020 NTSB

MOST WANTED LIST OF TRANSPORTATION SAFETY IMPROVEMENTS

RAILROAD

Eliminate Distractions

What is the problem?

Distraction is a growing and life-threatening problem in all modes of transportation. Some train operators aren't keeping their eyes and minds focused on their primary task—operating a train—and the results have been deadly. Communicating with crew and dispatchers, checking instruments and equipment, and handling scheduled procedures may be part of a train operator's work duties, but engaging in tasks that don't support operating a train can lead to crashes, such as the 2015 Amtrak crash in Philadelphia in which 8 people were killed and more than 200 were injured.

Increased use of portable electronic devices (PEDs) among rail employees, especially to compensate for ineffective company-provided radios, has increased the risk of distraction. Additionally, our investigations have found that railroad crew training on operator distractions due to PEDs is often limited in scope or nonexistent.

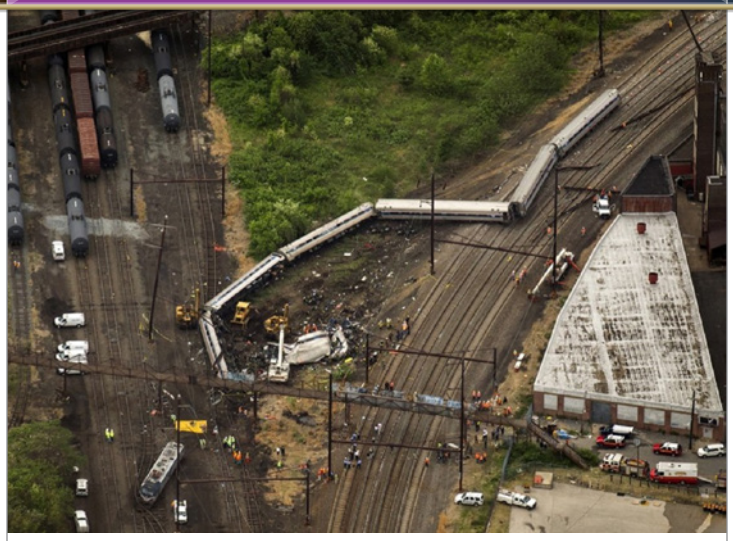
6,639

Rail crashes between 2009 and 2018 attributed to human factors*

Source: FRA

**Although the FRA does not specifically track distraction as a cause of or contributor to accidents, it is considered a "human factors" issue, meaning a problem caused by humans (such as the train crew).*

Contributing to the distraction problem is the widespread belief by many that they can multitask and still operate a train safely. But multitasking is a myth; humans can only focus cognitive attention on one task at a time. Train crews are either mentally processing task-relevant information, or they aren't. Moreover, precious cognitive resources are drained as distracted crews cycle attention between train operations and non-work-related activities. According to a 2014 study by the Federal Railroad Administration, assessing PED use among the railroad workforce, "the challenges of eliminating safety concerns related to electronic device distraction include their use among younger employees and cultural norms that accept their use."



On May 12, 2015, eastbound Amtrak passenger train 188 derailed in Philadelphia, Pennsylvania, with 245 passengers and 8 Amtrak employees on board. Eight passengers died, and 185 others were injured. The NTSB determined that the probable cause of the accident was the engineer's acceleration to 106 mph as he entered a curve with a 50 mph speed restriction, due to his loss of situational awareness likely because his attention was diverted to an emergency situation with another train.

Related reports:

RAR-16/02: Derailment of Amtrak Passenger Train 188; Philadelphia, Pennsylvania; May 12, 2015; Accident ID DCA15MR010

RAR-10/01: Collision of Metrolink Train 111 with Union Pacific Train LOF65-12; Chatsworth, California; September 12, 2008; Accident ID DCA08MR009

For detailed investigation reports, visit www.ntsb.gov

Continued on next page

Eliminate Distractions

What can be done?

The consequences of visual, manual, cognitive, and auditory distractions can be seen in all modes of transportation. In commercial operations, all safety-critical personnel must commit to minimizing distractions, and rail operators have a corporate responsibility to develop policies to reduce distraction.

Distraction should be engineered out of work wherever possible. Further, organizational leaders must recognize that managing distractions is a key element of managing safety. Working while distracted cannot become an accepted norm.

To address the problem of distraction, the following actions should be taken:

Engineers/Rail Safety Personnel

› Disconnect from non-mission-critical information. Learn to recognize when your focus has drifted and shift your attention back to your safety-critical role. In our investigation of the May 12, 2015, Amtrak 188 passenger train derailment in Philadelphia, we determined that the train engineer's focus shifted from operating the train to listening to information about a wayside emergency over the radio. Remember, seconds spent processing task-irrelevant information are seconds not spent cognitively engaged in the task at hand. Humans have a limited capacity to process information. Visual cues can be missed while processing auditory information.

Railroad Operators

› Implement ways to detect PED use and immediately provide railroad crews distraction-avoidance training. These interventions will help ensure crewmember and public safety.

On September 12, 2008, westbound Southern California Regional Rail Authority Metrolink train 111 collided head-on with an eastbound Union Pacific Railroad freight train near Chatsworth, California. The accident resulted in 25 fatalities, including the engineer of train 111. We determined that the probable cause of the collision was the failure of the Metrolink engineer to observe and appropriately respond to the red signal aspect because he was engaged in prohibited use of a wireless device, specifically text messaging, that distracted him from his duties.

Regulators

› Develop comprehensive safety requirements involving PED detection, distraction-avoidance training, and safety oversight to mitigate risks of operator distractions.

› Continue to build technical understanding of distraction arising from auxiliary tasks in regulated transportation, especially as regards new vehicle technologies that require real-time operator attention.

MWL MOST WANTED LIST

Critical changes needed to reduce transportation accidents, injuries, and fatalities

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NTSB National Transportation Safety Board

The NTSB **MOST WANTED LIST** highlights safety issues identified from the NTSB's accident investigations to increase awareness about the issues and promote recommended safety solutions.

For more information visit **www.ntsb.gov/mostwanted** or contact **SafetyAdvocacy@ntsb.gov**

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant accidents in other modes of transportation—railroad, highway, marine, and pipeline. The NTSB determines the probable cause of the accidents and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the federal government and other organizations to provide assistance to victims and their family members impacted by major transportation disasters.

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